

Work Order ID 138756

Thursday, November 12, 2015 8:19:48 AM

138756

Page 1

Item ID: D350-748-103 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube
 Start Date: 11/12/2015 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 11/12/2015 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: MLS Date: NOV 12 2015 Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D350-748-143	A		DAS	6					MLS 160323
100	Document Control	0.00	9-89			DAS			
100	DOCUMENT CONTROL					28			APR 04 2016
DC	Memo	0.00				9-89			
Doc.Control -USB or Paperwork	Photocopy bluefile & type labels per PPPD350-748-103		CHG001						
110		0.00							
110	BENDING MACHINE - CROSSTUBES								TX 16/02/22
CNC Bend 1	Memo	0.00							
CNC Delta 100 Bender	Bend tube as per Dwg D350-748-143 using CNC bender program D350F and Folio FT _____								
	****UNDER BEND .225" PER SIDE****								
	****USE (4) DT9824 SHIM BLOC TO CHECK STRAIGHTNESS****								

D350-748-103/138756

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: <u>138756</u> Part No. <u>D350-448-103</u> NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☒</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☒	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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Date : <u>16/2/24</u>		Step #: <u>110</u>		QTY Effective : <u>①</u>		MRB (QSI042) Approval <u>DAS</u> <u>12</u> <u>9-89</u> <u>16/2/24</u>																																																																	
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<u>Angles good/length out of tolerance.</u> r				<u>Acceptable.</u> <u>Not likely to cause fit issue.</u>																																																																			
				Completed By <u>DAS</u> <u>12</u> <u>9-89</u> <u>16/2/24</u> Lead hand / Supervisor <u>DAS</u> <u>47</u> <u>9-89</u> <u>16-02-24</u> QC / QA Coordinator Approval <u>DAS</u> <u>9</u> <u>9-89</u> <u>16-02-24</u>																																																																			
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120		0.00							
120									
Crosstubes	Memo	0.00							
Crosstubes	***VERIFY CROSSTUBE DIMENSIONS AS PER DWG***								
127	QC15- Crosstube Dimensional Check	0.00							DAS 47 9-89
127									
QC	Memo	0.00							
Quality Control	***MARK CUT LINES***								16-02-24
128		0.00							
128									
Crosstubes	Memo	0.00							
Crosstubes	CUT TUBE AT HEIGHT ON FAI SHEET								
	VERF HEIGHT <u>23.28</u> BY QC 15 LEVEL INSPECTOR <u>RB</u>								
	VERF TWIST <u>Ø</u> BY QC15 LEVEL INSPECTOR <u>RB</u>								

DQA: _____ Date: _____



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Revision ID:

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130

130

Crosstubes

Crosstubes

0.00

Crosstubes

Memo

0.00

2- Drill Tube as per Dwg D350-748-143 Using DT8876 A,B & C Drill Jigs,
Set-up drill table as per QSI 010

3- Deburr

4- Engrave Part # and Batch # as per Dwg D350-748-143

5- Remove all marks from tube within limits of D350-748-143

6- Apply a light coat of LPS3 on the interior of tube
Batch: _____

140

140

QC

Quality Control

QC5- Inspect part completeness to step on W/O 0.00

Memo

0.00

CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)

1 0 16/03/01

DAS
49
9-89

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Work Order ID 138756

Thursday, November 12, 2015 8:19:48 AM

138756

Page 4

Item ID: D350-748-103

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube

Start Date: 11/12/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 11/12/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

174

Outsource process - NDT per QSI038 4.1

0.00

174

Outsource2

Memo

0.00

Outsource process - NDT

ISSUE P/O TO ACUREN: 31561

1 MAR 02 2016 DAS 13 9-89

176

Receive & Inspect for Damage & Mat'l Certs

0.00

176

Packaging

Memo

0.00

Packaging

1 DAS 6 9-89 MAR 03 2016

178

QC5- Inspect part completeness to step on W/O

0.00

178

QC

Memo

0.00

Quality Control

1 DAS 38 9-89 MAR 11 2016

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138756

Page 6

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 11/12/2015 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 11/12/2015 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Approvals:

Process Plan: _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/
Work Center ID

Operation Description

Set Up/ Run Hours

Tool ID

Tool #**Plan
Code**

**Accept
Qty**

Reject
QtyReject
Number

**Insp.
Stamp**

200

0.00

200

Crosstubes

0.00

Crosstubes

Memo

Crosstubes

INSTALL GROUND WIRE INSERT, THEN INSERT SCREW AND WASHER

1-Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg

2-Install supports with Proseal 890 per D350-748-143 and QSI 015

A/R Proseal 890 Batch: 133640
EXP: 4/16

3-Install supports clamps Using Dt8876 as per Dwg D350-748-141,Torque to 60-80 IN-LBS.

PROSEAL CURE TIME 72 HOURS:

Start: 16-3-16
Finish: 16-3-19

***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED
FOR 72HOURS AS PER DWG.***

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Work Order ID 138756

Thursday, November 12, 2015 8:19:48 AM

138756

Page 8

Item ID: D350-748-103 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube
Start Date: 11/12/2015 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 11/12/2015 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start ***NR1***
QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	Packaging	0.00							
240									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D350-748-103								
	Location: _____								
	PPP Rev: _____								
250	QC21- Final Inspection - Work Order Release	0.00							
250									
QC	Memo	0.00							
Quality Control									

DAS 28 9-89 BAS 27 9-89
APR 01 2016
MCS APR 05 2016
MCS APR 04 2016

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OTHER : _____																																																																				

Picklist Print

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Page 1

Work Order ID: 138756

138756

Parent Item: D350-748-103

D350-748-103

Parent Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube

Start Date: 11/12/2015

Required Date: 11/12/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 15.03.23 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D350-748-143TRN

Manufactured

No

D350-748-143TRN

SS Crosstube Turning Detail

B135159

Each

8.0000

**

1 16-02-19

Location

Loc Qty

Loc Code

LG003

8

135154

1

135156

1

135157

1

135158

1

135159

1

135160

1

135161

1

135162

1

D3502-1

Manufactured

No

D3502-1

Support

Each

28.0000

**

2

DAS
41
9-80

16-3-22

Location

Loc Qty

Loc Code

LG052

28

130349

28

2

D5123-7

Manufactured

No

D5123-7

Clamp Cushion

Each

74.0000

**

2

DAS
41
9-80

16-3-22

Location

Loc Qty

Loc Code

LG052

74

131194

16

133492

12

136671

26

137766

20

2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
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OTHER : ☐					

Picklist Print

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Page 2

Work Order ID: 138756

138756

Parent Item: D350-748-103

D350-748-103

Parent Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube

Start Date: 11/12/2015

Required Date: 11/12/2015

Start Qty: 1.00

Required Qty: 1.00

AETC-1032

Purchased

No

Each

20.0000

1

DAS

AETC-1032

41

9-89

16-3-21

Insert

133732

Location

Loc Qty

Loc Code

ST547

20

m133002

20

NAS1149C0363R

Purchased

No

Each

1,061.000

1

DAS

NAS1149C0363R

41

9-89

16-3-21

Washer

Location

Loc Qty

Loc Code

FP001

24

114742

24

GA

506

m133077

506

ST260a

494

m133077

494

ST271

37

m132763

37

MS21920-20

Purchased

No

Each

157.0000

2

DAS

MS21920-20

41

9-89

16-3-22

Clamp

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

25

m133483

25

LG056

130

m128650

13

m132675

67

m133134

50

2

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DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

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Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
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OTHER : ☐					

Picklist Print

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Page 3

Work Order ID: 138756

138756

Parent Item: D350-748-103

D350-748-103

Parent Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube

Start Date: 11/12/2015

Required Date: 11/12/2015

Start Qty: 1.00

Required Qty: 1.00

MS51958-63

Purchased

No

Each

41.0000

1

DAS

41

9-89

16-3-21

MS51958-63

Screw

**

Location

Loc Qty

Loc Code

ST273

41

m131886

41

220

Each

534.0000

16

16

**

AN4-6A

Purchased

No

AN4-6A

BOLT

MAR 30 2016

Location

Loc Qty

Loc Code

CA

143

M128403

43

M130851

100

ST325A

100

M133363

100

ST345

291

M128403

8

M133316

283

220

Each

11.0000

4

4

**

D3500-1

Manufactured

No

D3500-1

Saddle

141572

Location

Loc Qty

Loc Code

ST406

11

129373

10

131168

1

DAS
6 27
9-89 9-89

DAS
27
6 9-89
9-89

MAR 30 2016

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Shop Packet Print

Page 3

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
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																						OTHER : ☐																																									

Picklist Print

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Page 4

Work Order ID: 138756

138756

Parent Item: D350-748-103

D350-748-103

Parent Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube

Start Date: 11/12/2015

Required Date: 11/12/2015

Start Qty: 1.00

Required Qty: 1.00

AN5-32A Purchased No 220 Each 219.0000 4 4

AN5-32A

Bolt

DAS
28
9-89

DAS
28
9-89

Location	Loc Qty	Loc Code
ST299A	180	
m132857	30	
m133323	150	
ST336	32	
m132536	32	
ST337	7	
m131139	7	

NAS1149D0463J Purchased No 220 Each 4,838.000 32 32

NAS1149D0463J

WASHER

138039

Location	Loc Qty	Loc Code
GA	626	
M129390	41	
M132035	585	
ST260a	1500	
M133316	1500	
ST263	1270	
M133284	1270	
ST269	1442	
M129682	47	
M130799	371	
M132317	101	
M132677	888	
M133077	35	

DAS
28
9-89

MAR 30 2016
DAS
28
9-89

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																															
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Page 5

Work Order ID: 138756

138756

Parent Item: D350-748-103

D350-748-103

Parent Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube

Start Date: 11/12/2015

Required Date: 11/12/2015

Start Qty: 1.00

Required Qty: 1.00

D3501-1

Manufactured No

220

Each

403.0000

16

16

D3501-1

Bushing

1742159

BAS

DAS 27

69-89

9-89

DAS
28
9-89

Location

Loc Qty

Loc Code

ST039

97

135919

97

ST051A

306

135918

306

AN4-41A

Purchased

No

220

Each

287.0000

8

8

AN4-41A

Bolt

DAS

BAS

27

6

9-89

9-89

DAS
28
9-89

Location

Loc Qty

Loc Code

ST312A

238

m130726

8

m132189

130

m133483

100

ST342

49

m130716

49

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
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LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

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Work Order ID: 138756

138756

Parent Item: D350-748-103

D350-748-103

Parent Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube

Start Date: 11/12/2015

Required Date: 11/12/2015

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

220

Each

665.0000

4

4

MS21042L5

Nut

134055

DAS 27
6 9-89

Location

Loc Qty

Loc Code

CCK004

200

m133577

200

GA

146

m127813

146

ST303

71

m132677

71

ST304

200

m133363

200

ST305

48

m127813

19

m131340

21

m132123

8

DAS
28
9-89

MAR 30 2016

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Description Work Order Deviation		Disposition																			
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OTHER : ☐																					

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Work Order ID: 138756

138756

Parent Item: D350-748-103

D350-748-103

Parent Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube

Start Date: 11/12/2015

Required Date: 11/12/2015

Start Qty: 1.00

Required Qty: 1.00

MS21042L4

Purchased

No

220

Each

1,978.000

24

24

MS21042L4

Locknut

**

134055

DAG

BAS

27

9-89

8-89

MAR 30 2016

Location

Loc Qty

Loc Code

FP001

2

m124231

2

GA

67

m127813

67

ST260a

138

m130799

56

m131803

6

m132262

76

ST303

1602

m133363

1602

ST305

169

m128300

8

m130388

7

m130922

97

m132123

56

m133316

1

8825

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Skid-tube ☐</td> <td style="width: 15%;">Cross tube ☐</td> <td style="width: 15%;">Water Jet ☐</td> <td style="width: 15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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Picklist Print

Thursday, November 12, 2015 8:19:52 AM

Page 8

Work Order ID: 138756

138756

Parent Item: D350-748-103

D350-748-103

Parent Item Name: AS350 / AS355 Stainless Steel Fwd Crosstube

Start Date: 11/12/2015

Required Date: 11/12/2015

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0563J

Purchased

No

220

Each

1,227.000

8

8

NAS1149D0563.J

Washer

134257

DAS 27
6 9-89

MAR 30 2016

Location

Loc Qty

Loc Code

GA

53

m125807

53

ST260a

928

m130799

63

m132035

55

m132256

10

m133134

300

m133363

500

ST269

227

m128257

156

m132677

71

ST271

19

m131026

19

DAS
28
9-89

Thursday, November 12, 2015 8:19:52 AM

Shop Packet Print

Page 8

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

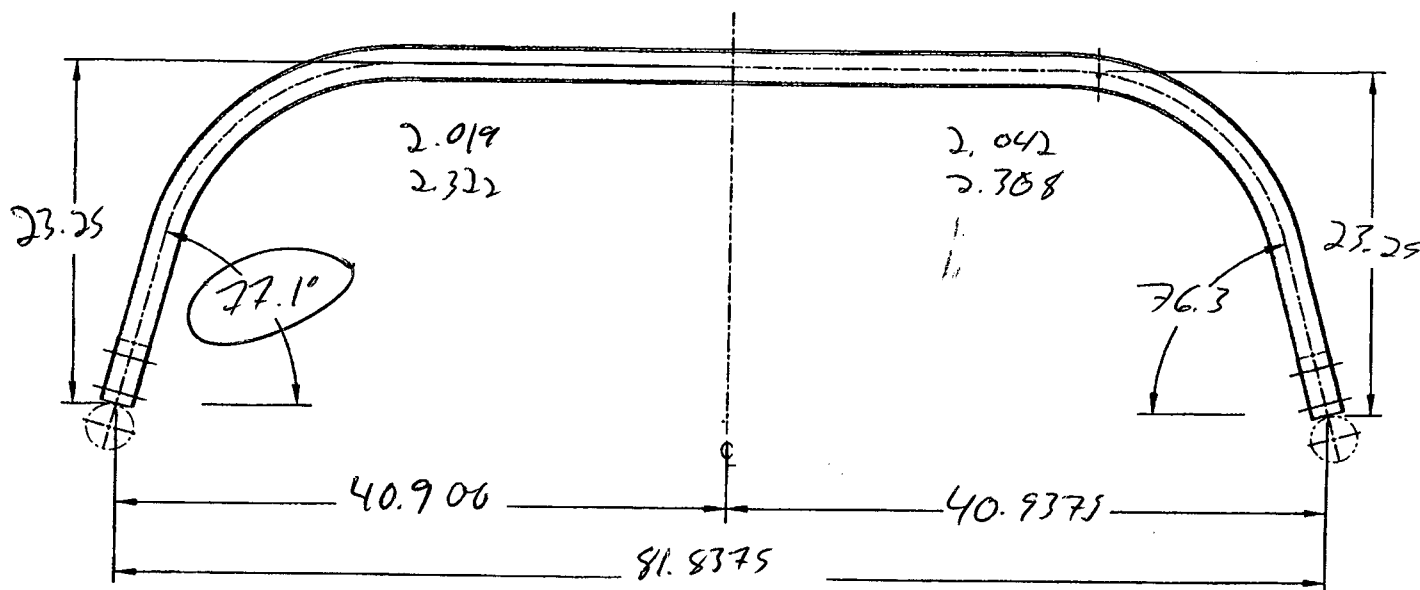
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td style="border: none;"></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																
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DART AEROSPACE LTD		Work Order:	138756
Description: Crosstube High Fwd, SS (AS350/355)		Part Number:	D350-748-103
Inspection Dwg: D350-748-143	Rev: A	Page 1 of 1	

Required Dimension	Min	Max
Height	23.00	23.50
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.55	82.05
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



	Side A	Side B
Bending Passes	35	30
Crushing	7%	6.1%
Comments		

DAS
47

QC15 Inspection	9-89
Date	16-02-24

Rev	Date	Change	Revised by	Approved
A	15.09.09	New Issue	KJ	AA

Item	Qty -143	Part Number	Description
	X	D350-748-143	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
1	1	D6021-125	CROSSTUBE
2	2	D3502-1	SUPPORT
3	2	D5123-7	CLAMP CUSHION
4	1	AETC-1032	INSERT
5	2	MS21920-20 OR MS21920-21/-22	CLAMP (PER DART SPEC. M-MS21920-20/-21/-22)
6	1	NAS1149C0363R	WASHER (OR AN960C10)
7	1	NAS1635-3-8	SCREW (OR MS51958-63)
8	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6021-125 (17-4PH)
FINISHED LENGTH AFTER TURNING = 112.270±0.06 (AFTER BENDING/TRIMMING = 110.27 REF)
- 2) FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-143" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.290 HOLE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

TURNING

- 10) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.

BENDING

- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- 12) MAX AMPLITUDE OF RIBBLING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- 13) MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

ASSEMBLY

- 14) TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 60 TO 80 IN.-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

SHOP COPY
RETURN TO
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UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 138756 MJS
1571-12

UNDER REVIEW

15/4/26
URF 15-56)

RELEASED

2015 MAR 18

REN 15-547

A	NEW ISSUE	CP	15.01.21
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED	A.P.		
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	15.01.21		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D350-748-143
REV. A
SHEET 1 OF 4

TITLE CROSSTUBE (AS 350/355 HI FWD)
SCALE NTS

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C

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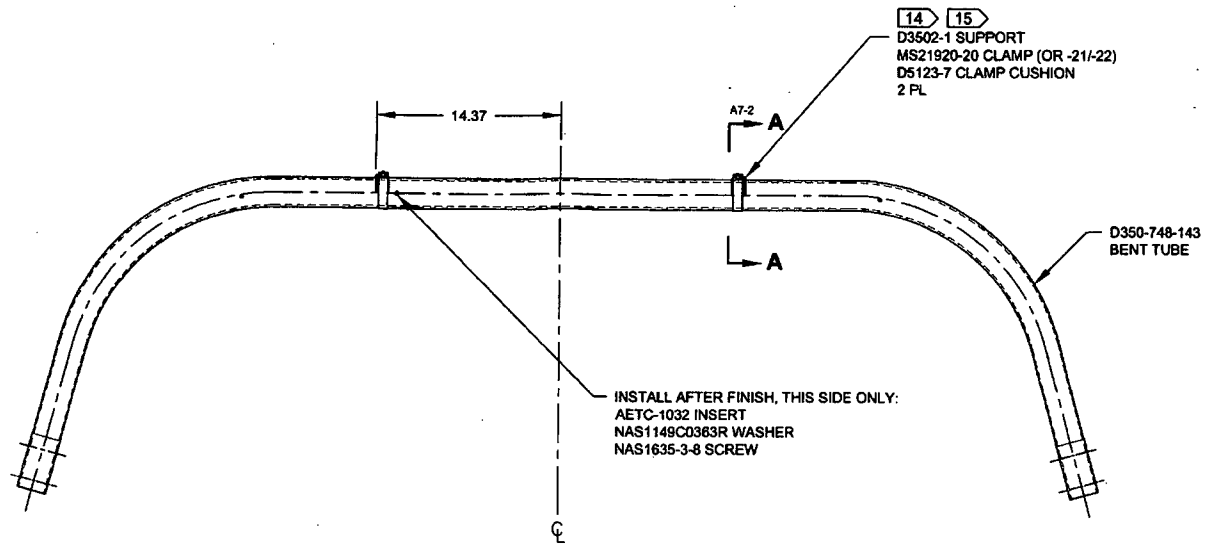
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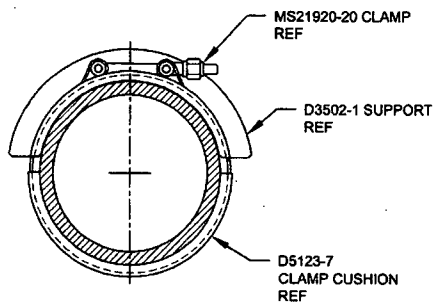
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**D350-748-143
ASSEMBLY DETAIL**



SECTION A-A D4-2
SCALE 6X

UNDER REVIEW

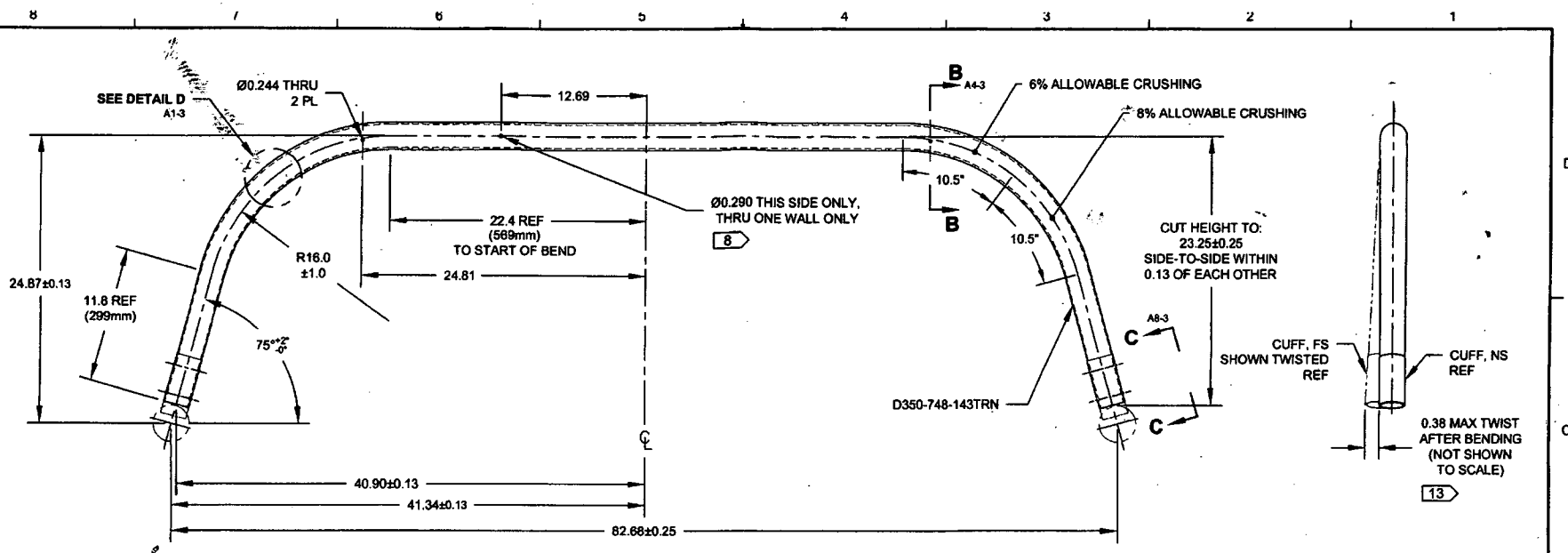
4/15/23

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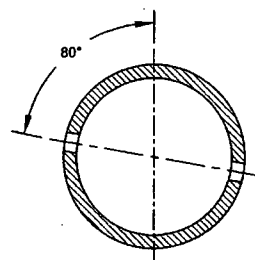
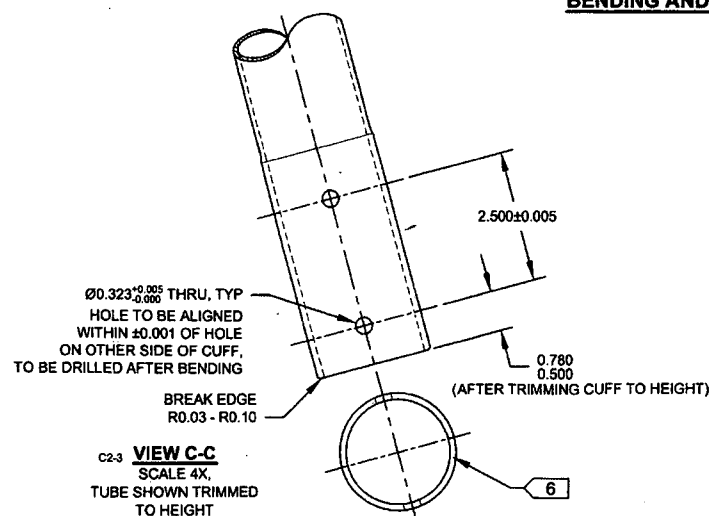
2015 MAR '18
47 EGN-15-547

DESIGN	47	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	47	DRAWING NO.	REV. A
CHECKED	A.P.	D350-748-143	SHEET 2 OF 4
MFG. APPR.	[Signature]	TITLE	SCALE
APPROVED	[Signature]	CROSSTUBE (AS 350/355 HI FWD)	NTS
DE APPR.	[Signature]	COPYRIGHT © 2015 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	15.01.21		

8 7 6 5 4 3 2 1



D350-748-143
BENDING AND DRILLING DETAIL 11



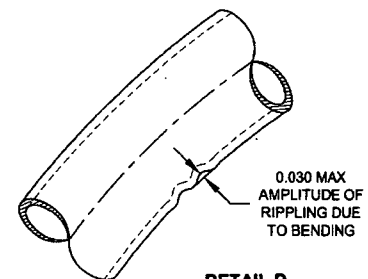
SECTION B-B D3-3
SCALE 6X

RELEASED

2015 MAR 18

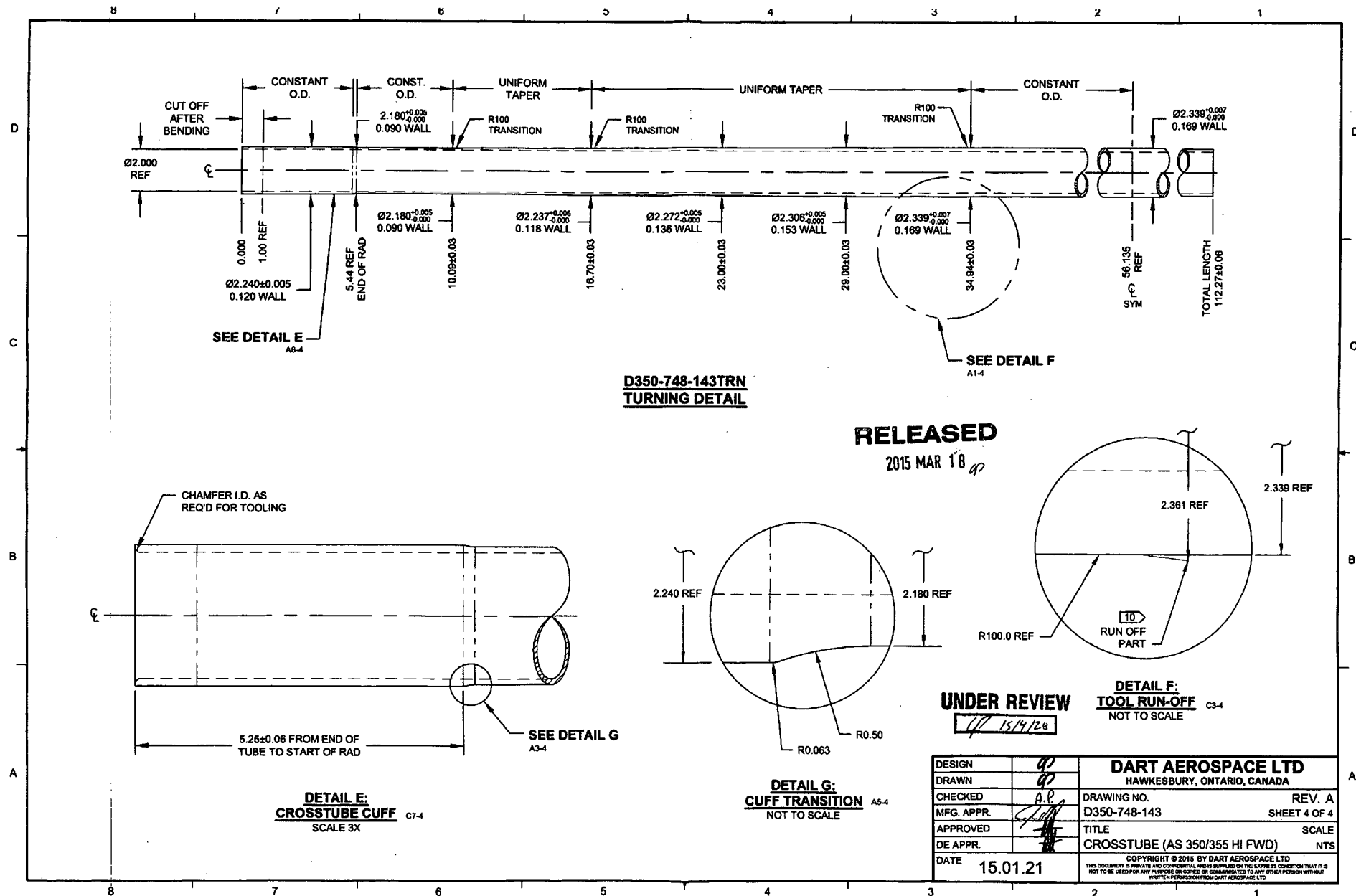
UNDER REVIEW

15/14/2e



DETAIL D D7-3
SCALE 4X
RIBBLING EXAGGERATED

DESIGN	9	DART AEROSPACE LTD	
DRAWN	9	HAWKESBURY, ONTARIO, CANADA	
CHECKED	A.P.	DRAWING NO.	REV. A
MFG. APPR.		D350-748-143	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (AS 350/355 HI FWD)	NTS
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skyservice Work Order Traveler

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.71-2 / BDA AMO 385

WO #: MWO27509	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: 31561
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT INSPECTION (LIQUID PENETRANT) ON 8 CROSSTUBES

ITEM ID: D350-748-103 AS350/AS355 STAINLESS STEEL FWD CROSSTUBE (QTY7)

- 1 - WORK ORDER ID#: 138753
- 2 - WORK ORDER ID#: 138756
- 3 - WORK ORDER ID#: 138755
- 4 - WORK ORDER ID#: 138758
- 5 - WORK ORDER ID#: 138757
- 6 - WORK ORDER ID#: 138754
- 7 - WORK ORDER ID#: 141834

14/3/3
SC

ITEM ID: D350-748-203 AS350/AS355 STAINLESS STEEL AFT CROSSTUBE (QTY1)
8 - WORK ORDER ID#: 141833

Action Taken:						Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE (ITEMS 1-8) AS PER ASTM1417M-13						3 Feb 2016	
NO CRACK FOUND							
Pen: ZL-27A MWO5678 DEV: SKD-S2 MPO11715 CLEANER: SKC-S MPO13923							
Description	Location	P/N	Qty	Batch	S/N Off		S/N On
		DAS					
		38					
		9-89					
		MAR 11 2016					

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:		ACA/SCA Stamp DOT-APP 61 53-89	Date:
Name:	A. Manchette		3 FEB 2016



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO31561**

Purchase Order Date 3/2/2016

PO Print Date 3/2/2016

Page Number 2 of 4

Order From :

VC-SKY001

SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via: Delivered

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax # 10127-2607

Terms Net 30

Currency CAD

FOB FCA - (Free Carrier)

Line Total: \$137.00

Line	Part Number	Description	Quantity	Unit Price	Total Price
3	138754	D350-748-103 CROSSTUBE	1.00	\$137.00	\$137.00

Yes
3/2/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$137.00

Line	Part Number	Description	Quantity	Unit Price	Total Price
4	138755	D350-748-103 CROSSTUBE	1.00	\$137.00	\$137.00

Yes
3/2/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$137.00

Line	Part Number	Description	Quantity	Unit Price	Total Price
5	138756	D350-748-103 CROSSTUBE	1.00	\$137.00	\$137.00

Yes
3/2/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

161313
54

Note:

3/2/2016